10/585296 AP20Rec'd PCT/PTO 06 JUL 2006

SEQUENCE LISTING

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<110> Kabushiki Kaisha Hayashibara Seibutsu Kagaku Kenkyujo
      Tadanori Mayumi
      Yasuo Tsutsumi
      Shinsaku Nakagawa
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Val Val Pro Ser Glu Gly Leu Tyr Leu lle Tyr Ser Gin Val Leu Phe
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Lys Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
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Pro Trp Tyr Glu Pro lle Tyr Leu Gly Gly Val Phe Gln Leu Glu Lys
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Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
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Val Val Pro Ser Glu Gly Leu Tyr Leu lle Tyr Ser Gln Val Leu Phe
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tog ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr 11e
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age ege ate gee gte tee tae eag ace eee gte aac ete ete tet gee 288
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
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Pro Trp Tyr Glu Pro lle Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
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                            120
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Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
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 Val Ala Asn Pro Gin Ala Giu Giy Gin Leu Gin Trp Leu Asn Arg Arg
 gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
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 gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
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Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
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ago ogo ato goo gto too tao oag aco ogg gto aac oto oto tot goo 288
Ser Arg Ile Ala Val Ser Tyr Gln Thr Arg Val Asn Leu Leu Ser Ala
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atc gcc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc ctc 336
lle Ala Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Leu
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ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag acc 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Thr
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Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
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Val Ala Asn Pro Gin Ala Glu Gly Gin Leu Gin Trp Leu Asn Arg Arg
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gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
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gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
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teg gge caa gge tge eec tee ace cat gtg etc etc ace cae ace atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr lle
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age ege ate gee gte tee tac eag ace gae gte aac etc etc tet gee 288
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Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala

lle Ala Ser Pro Cys Gin Arg Glu Thr Pro Giu Gly Ala Glu Ala Leu

Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Thr

atc gcc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc ctc 336

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Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
Ser-Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
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Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
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Pro Trp Tyr Glu Pro lle Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
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Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
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Xaa Xaa Xaa Gly Gln Val Tyr Phe Gly lie lie Ala Leu
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Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr 11e
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Ser Arg IIe Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
                                     90
                 85
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
lle Arg Ser Pro Cys Gin Arg Giu Thr Pro Giu Gly Ala Giu Ala Asn
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Pro Trp Tyr Glu Pro lle Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
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                                                125
       115
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu lle Asn Arg Pro Asp Tyr Leu Asp Phe
                                             140
                        135
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nns nns nns ggg cag gtc tac ttt ggg atc att gcc ctg
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Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
Val Val Pro Ser Glu Gly Leu Tyr Leu I e Tyr Ser Gln Val Leu Phe
                          55
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Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr 11e
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Ser Arg Ile Xaa Xaa Xaa Xaa Xaa Xaa Pro Val Asn Leu Leu Ser Ala
lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
Pro Trp Tyr Giu Pro Ile Tyr Leu Gly Gly Val Phe Gin Leu Glu Pro
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120

115

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Gly Asp Arg Leu Ser Ala Glu lle Asn Arg Pro Asp Tyr Leu Asp Phe
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gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gin Ala Giu Giy Gin Leu Gin Trp Leu Asn Arg Arg
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
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                                                 45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu IIe Tyr Ser Gln Val Leu Phe
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                         55
tog ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
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                     70
                                         75
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Ser Arg IIe Xaa Xaa Xaa Xaa Xaa Aro Val Asn Leu Leu Ser Ala
                                     90
                 85
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
lle Arg Ser Pro Cys Gin Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
            100
                                105
                                                    110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
        115
                            120
                                                125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu lle Asn Arg Pro Asp Tyr Leu Asp Phe
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gcc gag tot ggg cag gtc tac ttt ggg atc att gcc ctg
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Val Val Pro Ser Glu Gly Leu Tyr Leu IIe Tyr Ser Gln Val Leu Phe 50 55 60

Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr 11e 65 70 75 80

Ser Arg I le Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala 85 90 95

lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn 100 105 110

Pro Trp Tyr Glu Pro 11e Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro 115 120 125

Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe 130 135 140

Ser Gly Thr Gly Gln Val Tyr Phe Gly IIe IIe Ala Leu 145 150 155

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<211> 146

<212> PRT

<213> Artificial Sequence

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Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu 35 40 45

Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe 50 55 60

Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr 11e 65 70 75 80

Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala

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85
                                       90
 lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
                                 105
Pro Trp Tyr Glu Pro lle Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
                             120
         115
                                                  125
 Gly Asp Arg Leu Ser Ala Glu lle Asn Arg Pro Asp Tyr Leu Asp Phe
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                                              140
 Ser Met
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 Val Vai Pro Ser Glu Gly Leu Tyr Leu lie Tyr Ser Gln Val Leu Phe
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Ihr Ile
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 Ser Arg IIe Ala Val Ser Tyr Gin Thr Pro Val Asn Leu Leu Ser Ala
 lle Arg Ser Pro Cys Gin Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
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                                  105
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
 Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
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 30

 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35
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 45

 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
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 55
 60

 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 75
 80

 Ser Arg Ile Ala Val Ser Tyr*Gln Thr Pro Val Asn Leu Leu Ser Ala
 90
 95

 Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
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 95

105

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Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gin Leu Glu Pro
                                                125
                            120
Gly Asp Arg Leu Ser Ala Glu lle Asn Arg Pro Asp Tyr Leu Asp Phe
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Ala Asn Pro Gly Gln Val Tyr Phe Gly lie lle Ala Leu
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Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gin Leu
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Val Val Pro Ser Glu Gly Leu Tyr Leu lle Tyr Ser Gln Val Leu Phe
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Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
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Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
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lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
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Pro Trp Tyr Glu Pro 11e Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
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                            120
                                                 125
Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
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                        135 .
Lys Asp Thr Gly Gln Val Tyr Phe Gly 11e 11e Ala Leu
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Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu.
Val Val Pro Ser Glu Gly Leu Tyr Leu IIe Tyr Ser Gln Val Leu Phe
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
Pro Trp Tyr Glu Pro lle Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
        115
                            120
Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
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Arg Thr Asp Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
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<211> 157

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<400> 16

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 10
 15

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 25
 30

 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gin Leu
 35
 40
 45

 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gin Val Leu Phe
 50
 60

 Ser Gly Gin Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 75
 80

 Ser Arg Ile Ala Val Ser Tyr Gin Thr Pro Val Asn Leu Leu Ser Ala
 85
 90
 95

 Ile Arg Ser Pro Cys Gin Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
 90
 95

Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro 115 120 125

Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe

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Arg Glu Thr Gly Gln Val Tyr Phe Gly lle lle Ala Leu
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Val Ala Asn Pro Gin Ala Giu Giy Gin Leu Gin Trp Leu Asn Arg Arg
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Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gin Leu
Val Val Pro Ser Glu Gly Leu Tyr Leu 11e Tyr Ser Gln Val Leu Phe
     50
                         55
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr lle
                     70
                                          75
Ser Arg IIe Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
                 85
                                      90
lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
                                 105
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
        115
                            120
                                                 125
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
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Ala Asp Asp Gly Gln Val Tyr Phe Gly 11e 11e Ala Leu
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                                 25
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
                             40
Val Val Pro Ser Glu Gly Leu Tyr Leu 11e Tyr Ser Gln Val Leu Phe
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                         55
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
                                         75
                     70
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
        115
                            120
Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
Ala Asn Asp Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
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Val Ala Asn Pro Gin Ala Giu Giy Gin Leu Gin Trp Leu Asn Arg Arg
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
Val Val Pro Ser Glu Gly Leu Tyr Leu lle Tyr Ser Gln Val Leu Phe
                         55
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
                     70
                                         75
65
Ser Arg IIe Thr Pro Ala IIe Asn Arg Pro Val Asn Leu Leu Ser Ala
lle Arg Ser Pro Cys Gin Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
                                                    110
            100
                                105
Pro Trp Tyr Glu Pro lle Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
                            120
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Gly Asp Arg Leu Ser Ala Glu lle Asn Arg Pro Asp Tyr Leu Asp Phe
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Ala Glu Ser Gly Gin Val Tyr Phe Gly Ile Ile Ala Leu
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Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gin Leu
         35
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
                          55
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr lle
                     70
                                          75
Ser Arg. 11e Ala Pro Gly Tyr Ser His Pro Val Asn Leu Leu Ser Ala
lle Arg Ser Pro Cys Gln Arg Glu Thr. Pro Glu Gly Ala Glu Ala Asn
            100
                                 105
Pro Trp Tyr Glu Pro lle Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
        115
                             120
                                                 125
Gly Asp Arg Leu Ser Ala Glu lle Asn Arg Pro Asp Tyr Leu Asp Phe
    130
                        135
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145
                    150
                                         155
<210> 21
<211> 157
<212> PRT
<213> Artificial Sequence
<220>
<223> Clone No. 37
<400> 21
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
Val Ala Asn Pro Gin Ala Giu Giy Gin Leu Gin Trp Leu Asn Arg Arg
                                  25
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
         35
```

```
Val Val Pro Ser Glu Gly Leu Tyr Leu lle Tyr Ser Gln Val Leu Phe
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65
                     70
Ser Arg IIe Ser Thr Thr His Asn Gln Pro Val Asn Leu Leu Ser Ala
lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
                            120
Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
    130
                       .135
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145
                    150
                                         155
<210> 22
<211> 157
<212> PRT
<213> Artificial Sequence
<220>
<223> Clone No. 38
<400> 22
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
                                     10
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
```

25 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu 40 Val Val Pro Ser Glu Gly Leu Tyr Leu IIe Tyr Ser Gln Val Leu Phe 50 55 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile 75 Ser Arg lie Gly Gly Pro Tyr Gln Arg Pro Val Asn Leu Leu Ser Ala 85 90 lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn 105 Pro Trp Tyr Glu Pro lle Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro 115 120 125 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe 130 135 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu 145 150 155

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<211> 471
<212> DNA
<213> Artificial Sequence
<220>
<223> Clone No. 5
<400> 23
gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
gta gca aac cct caa gct gag ggg cag ctc cag tgg agg aac tcg cac 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Arg Asn Ser His
             20
                                 25
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
         35
                                                 45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu lle Tyr Ser Gln Val Leu Phe
                         55
tog ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
ago ogo ato goo gto too tac oag aco oco gto aac oto oto tot goo 288
Ser Arg IIe Ala Val Ser Tyr Gin Thr Pro Val Asn Leu Leu Ser Ala
                 85
                                     90
                                                          95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
lle Arg Ser Pro Cys Gin Arg Giu Thr Pro Giu Gly Ala Giu Ala Asn
            100
                                105
                                                     110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro lle Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
        115
                            120
                                                125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu lle Asn Arg Pro Asp Tyr Leu Asp Phe
    130
                        135
                                             140
tog ggc acc ggg cag gtc tac ttt ggg atc att gcc ctg
Ser Gly Thr Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145
                    150
                                         155
<210> 24
<211> 441
<212> DNA
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<213> Artificial Sequence

<220>

<223> Clone No. 6

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<400> 24
 gtc aga toa tot tot cga acc ccg agt gac atg.cct gta gcc cat gtt 48
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 gta gca aac cct caa gct gag ggg cag ctc cag tgg tcg aac cgg tac 96
 Val Ala Asn Pro Gin Ala Giu Giy Gin Leu Gin Trp Ser Asn Arg Tyr
              20
                                  25
                                                       30
 gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35
 gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
 Val Val Pro Ser Glu Gly Leu Tyr Leu IIe Tyr Ser Gln Val Leu Phe
                          55
      50
 tog ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
  65
                                           75
                                                               80
 ago ogo ato goo gto too tao dag ado oco gto aad oto oto tot goo 288
 Ser Arg IIe Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
                  85
                                       90
 atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
 lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
             100
                                  105
 ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
 Pro Trp Tyr Glu Pro He Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
         115
                             120
                                                  125
 ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
 Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
     130
                         135
                                              140
 tcc atg tag
· Ser · Met
 145
 <210> 25
 <211> 471
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Clone No. 7
 <400> 25
gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
  1
                                       10
                                                           15
gta gca aac cct caa gct gag ggg cag ctc cag tgg cac aac aac acg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp His Asn Asn Thr
              20
                                  25
```

```
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
                         55
                                             60
   · 50
tog ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
                     70
                                          75
 65
age ege ate gee gte tee tae eag ace eee gte aac etc etc tet gee 288
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
                                                          95
                                      90
                 85
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
            100
                                105
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
                         120
        115 ·
                                                 125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu lle Asn Arg Pro Asp Tyr Leu Asp Phe
    130
                        135
                                             140
gac tcc aac ggg cag gtc tac ttt ggg atc att gcc ctg
Asp Ser Asn Gly Gln Val Tyr Phe Gly lle lle Ala Leu
145
                    150
                                         155
<210> 26
<211> 471
<212> DNA
<213> Artificial Sequence
<220>
<223> Clone No. 8
<400> 26
gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
  1
                  5
                                      10
                                                          15
gta gca aac cct caa gct gag ggg cag ctc cag tgg cgc aac gag cac 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Arg Asn Glu His
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
                                                  45
         35
                              40
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu lle Tyr Ser Gln Val Leu Phe
     50
                         55
tog ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
```

```
Ser Gly Gin Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr lie
                                         .75
                     70
ago ego ate geo gto tee tac eag ace eec gto aac etc etc tet geo 288
Ser Arg lie Ala Val Ser Tyr Gin Thr Pro Val Asn Leu Leu Ser Ala
                                      90
                 85
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
            100
                                105
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
        115
                                                 125
                            120
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
    130
                        135
                                             140
aac aac gcg ggg cag gtc tac ttt ggg atc att gcc ctg
Asn Asn Ala Gly Gin Val Tyr Phe Gly 11e 11e Ala Leu -
145
                    150
                                         155
<210> 27
<211> 471
<212> DNA
<213> Artificial Sequence
<220>
<223> Clone No. 9
<400> 27
gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
                                      10
gta gca aac cct caa gct gag ggg cag ctc cag tgg agc aac ccc atg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Ser Asn Pro Met
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
         35
                             40
                                                  45
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
     50
                         55
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr lle
65
                     70
                                          75
ago ogo ato goo gto too tao oag aco oco gto aac oto oto tot goo 288
Ser Arg IIe Ala Val Ser Tyr Gin Thr Pro Val Asn Leu Leu Ser Ala
                                                          95
                                      90
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
```

lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn

```
110
             100
                                 105
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
 Pro Trp Tyr Glu Pro lle Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
        115
                                                 125
                             120
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
 Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
     130
                         135
 gcc aac ccc ggg cag gtc tac ttt ggg atc att gcc ctg
 Ala Asn Pro Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
· 145
                     150
                                         155
 <210> 28
 <211> 471
 <212>, DNA
 <213> Artificial Sequence
 <220>
 <223> Clone No. 10
<400> 28
 gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
                                      10
 gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
              20
                                  25
 gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
                                                  45
          35
                              40
 gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu lle Tyr Ser Gln Val Leu Phe
     50
                          55
                                              60
 tog ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
                      70
                                          75
  65
 ago ogo ato goo gto too tao oag aco oco gto aac oto oto tot goo 288
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Vai Asn Leu Leu Ser Ala
                                      90
 atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
 lle Arg Ser Pro Cys Gin Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
                                                      110
                                 105
             100
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro lle Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
                             120
                                                  125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
 Gly Asp Arg Leu Ser Ala Glu IIe Ash Arg Pro Asp Tyr Leu Asp Phe
```

135

aag gac acg ggg cag gtc tac ttt ggg atc att gcc ctg Lys Asp Thr Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu 150 155

<210> 29
<211> 471
<212> DNA
<213> Artificial Sequence
<220>
<223> Clone No. 11
<400> 29
gtc aga tca tct tct cga ac
Val Arg Ser Ser Ser Arg Th

gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val

1 5 10 15
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96

yal Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
20 25 30

Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu

35

40

45

gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192 Val Val Pro Ser Glu Gly Leu Tyr Leu 11e Tyr Ser Gln Val Leu Phe 50 55 60

tog ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr 11e 65 70 75 80

ago ogo ato goo gto too tac oag aco oco gto aac oto oto tot goo 288 Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala 85 90 95

atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336

Ile Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn

100 105 110

ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro lle Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
115 120 125

ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432 Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe 130 135 140

cgg acg gac ggg cag gtc tac ttt ggg atc att gcc ctg Arg Thr Asp Gly Gln Val Tyr Phe Gly IIe IIe Ala Leu 145 150 155

<210> 30 <211> 471

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<212> DNA
 <213> Artificial Sequence
 <220>
 <223> Clone No. 12
 <400> 30
 gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
                                       10
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
 Val Ala Asn Pro Gin Ala Giu Giy Gin Leu Gin Trp Leu Asn Arg Arg
              20
 gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35
                               40
 gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
 Val Val Pro Ser Glu Gly Leu Tyr Leu IIe Tyr Ser Gln Val Leu Phe
 tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65
                      70
                                           75
 ago ogo ato goo gto too tao oag aco oco gto aac oto oto tot goo 288
 Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
                                       90
 atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
 lle Arg Ser Pro Cys Gin Arg Giu Thr Pro Giu Gly 'Ala Giu Ala Asn
           - 100
                                  105
 ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
 Pro Trp Tyr Giu Pro Ile Tyr Leu Gly Gly Val Phe Gin Leu Glu Pro
         115
                              120
 ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
 Gly Asp Arg Leu Ser Ala Glu lle Asn Arg Pro Asp Tyr Leu Asp Phe
     130
                         135
                                              140
 agg gag acg ggg cag gtc tac ttt ggg atc att gcc ctg
 Arg Glu Thr Gly Gln Val Tyr Phe Gly lie lie Ala Leu
 145 ·
                     150
                                          155
 <210> 31
 <211> 471
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Clone No. 13
```

<400> 31

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gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
. Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
                                                            15
  gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
  Val Ala Asn Pro Gin Ala Giu Giy Gin Leu Gin Trp Leu Asn Arg Arg
  gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
  Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
           35
                               40
  gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
  Val Val Pro Ser Glu Gly Leu Tyr Leu lle Tyr Ser Gln Val Leu Phe
      ·50
                           55
  tog ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240-
  Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr lle
   65
                       70
  ago ogo ato goo gto too tao oag aco oco gto aac oto oto tot goo 288
  Ser Arg IIe Ala Val Ser Tyr Gin Thr Pro Val Asn Leu Leu Ser Ala
                   85
  atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
  lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
              100
                                 105
  ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
  Pro Trp Tyr Glu Pro 11e Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
          115
                              120 .
  ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
  Gly Asp Arg Leu Ser Ala Glu lie Asn Arg Pro Asp Tyr Leu Asp Phe
                          135
  gcc gac gag ggg cag gtc tac ttt ggg atc att gcc ctg
  Ala Asp Asp Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
  145
                      150
  <210> 32
  <211> 471
  <212> DNA
  <213> Artificial Sequence
  <220>
  <223> Clone No. 14
  <400> 32
  gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
  Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
                                       10
  gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
  Val Ala Asn Pro Gin Ala Giu Giy Gin Leu Gin Trp Leu Asn Arg Arg
               20
```

gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144

```
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
 Val Val Pro Ser Glu Gly Leu Tyr Leu lle Tyr Ser Gin Val Leu Phe
      50
                          55
 tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
  65
                      70
 ago ogo ato goo gto too tac dag aco oco gto aac oto oto tot goo 288
 Ser Arg lie Ala Val Ser Tyr Gin Thr Pro Val Asn Leu Leu Ser Ala
                  85
 atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
 lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
             100
                                  105
 ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
 Pro Trp Tyr Glu Pro lle Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
         115
                                                  125
                             120
 ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
, Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
                         135
 gcc aac gac ggg cag gtc tac ttt ggg atc att gcc ctg
 Ala Asn Asp Gly Gln Val Tyr Phe Gly IIe IIe Ala Leu
 145
                     150
                                          155
 <210> 33
 <211> 471
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Clone No. 35
 <400> 33
 gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
 Val Ala Asn Pro Gin Ala Glu Gly Gin Leu Gin Trp Leu Asn Arg Arg
              20
                                   25
 gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35
 gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
 Val Val Pro Ser Glu Gly Leu Tyr Leu IIe Tyr Ser Gln Val Leu Phe
                          55
 tog ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
```

```
65
                      70
                                          75
 ago ogo ato aco coo goo ato aac ogg coo gto aac cto cto tot goo 288
Ser Arg lle Thr Pro Ala IIe Asn Arg Pro Val Asn Leu Leu Ser Ala
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
             100
                                 105
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
                             120
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu lle Asn Arg Pro Asp Tyr Leu Asp Phe
    130
                        135
gcc gag tot ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145
                     150
                                         155
<210> 34
<211> 471
<212> DNA
<213> Artificial Sequence
<220>
<223> Clone No. 36
<400> 34
gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
             20
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
         35
                             40
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu 11e Tyr Ser Gln Val Leu Phe
                         55
tog ggo caa ggo tgo coc too acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr 11e
 65
                     70
                                          75
ago ogo ato gog coo ggo tao too cao coo gto aac cto cto tot goo 288
Ser Arg 11e Ala Pro Gly Tyr Ser His Pro Val Asn Leu Leu Ser Ala
                                      90
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
```

105

```
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp-Tyr Glu Pro lle Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
         115
                            120
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
    130
                        135
                                             140
gcc gag tot ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
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                    150
<210> 35
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<212> DNA
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gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
                                      10
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gin Ala Giu Giy Gin Leu Gin Trp Leu Asn Arg Arg
             20
                                 25
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
         35
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu IIe Tyr Ser Gln Val Leu Phe
                         55
tog ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65
                     70
                                          75
ago ogo ato ago aco aco cao aac cag oco gto aac cto cto tot goo 288
Ser Arg IIe Ser Thr Thr His Asn Gln Pro Val Asn Leu Leu Ser Ala
                 85
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
                       . 105
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro lle Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
        115
                            120
                                                 125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
    130
                        135
                                             140
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gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg

Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu

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145
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 <210> 36
· <211> 471
 <212> DNA
 <213> Artificial Sequence
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 <400> 36
 gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 1
 gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 god aat god oto otg god aat ggd gtg gag otg aga gat aad dag otg 144
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35
                              40
 gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
 Val Val Pro Ser Glu Giy Leu Tyr Leu Lie Tyr Ser Gin Val Leu Phe
      50
 tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65
                                           75
 age ege ate gge gge eeg tae eag egg eee gte aac ete ete tet gee 288
 Ser Arg IIe Gly Gly Pro Tyr Gln Arg Pro Val Asn Leu Leu Ser Ala
 atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
 lle Arg Ser Pro Cys Gin Arg Giu Thr Pro Giu Gly Ala Giu Ala Asn
             100
                                                      110
                                 105
 ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
         115
 ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
 Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
     130
                         135
                     gtc tac ttt ggg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile 11e Ala Leu
 145
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                                         155
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<212> PRT
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<220>
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 <400> 37
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
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 Val Ala Asn Pro Gin Ala Giu Giy Gin Leu Gin Trp Gin Asn Arg Trp
                                  25
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
Val Val Pro Ser Glu Gly Leu Tyr Leu IIe Tyr Ser Gln Val Leu Phe
                          55
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
                                          75
Ser Arg IIe Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
 lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
             100
                                 105
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
                             120
Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
                        135
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145
                    150
<210> 38
<211> 157
<212> PRT
<213> Artificial Sequence
<220>
<223> Clone No. 2
<400> 38
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Thr Asn Gly Tyr
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                                  25
.Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gin Leu
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
                                      90
lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
```

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100
                                 105
Pro Trp Tyr Glu Pro lle Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
        115
                             120
                                                 125
Gly Asp Arg Leu Ser Ala Glu lle Asn Arg Pro Asp Tyr Leu Asp Phe
    130
                         135
                                             140
Ala Glu Ser Gly Gln Val Tyr Phe Gly IIe IIe Ala Leu
                    150
<210> 39
<211> 157
<212> PRT
<213> Artificial Sequence
<220>
<223> Clone No. 3
<400> 39
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
Val Ala Asn Pro Gin Ala Giu Giy Gin Leu Gin Trp Leu Asn Ser Asp
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
Val Val Pro Ser Glu Gly Leu Tyr Leu lle Tyr Ser Gln Val Leu Phe
     50
                          55
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
Ser Arg IIe Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
lle Arg Ser Pro Cys.Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
        115
                            120
Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
Ala Ala Arg Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145
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<210> 40
<211> 157
<212> PRT
<213> Artificial Sequence
<220>
<223> Clone No. 4
<400> 40
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
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15
Val Ala Asn Pro Gin Ala Giu Giy Gin Leu Gin Trp Lys Asn Ala Giy
                                  25
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
                          55
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
                      70
Ser Arg IIe Ala Vai Ser Tyr Gin Thr Pro Vai Asn Leu Leu Ser Ala
lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
                                 105
Pro Irp lyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
                            120
                                                 125
Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
                        135
Ala Ser Ihr Gly Gln Val Tyr Phe Gly Ile lie Ala Leu
145
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                                         155
<210> 41
<211> 157
<212> PRT
<213> Artificial Sequence
<220>
<223> Clone No. 16
<400> 41
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
                                      10
Val Ala Asn Pro Gin Ala Giu Giy Gin Leu Gin Trp Leu Asn Arg Arg
Ala Asn Ala Leu Leu Ala Asn Giy Val Glu Leu Arg Asp Asn Gln Leu
         35
                             40
                                                  45
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
                         55
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr lle
 65
                     70
Ser Arg IIe Ser Ser Thr Tyr Pro Asp Pro Val Asn Leu Leu Ser Ala
lle Arg Ser Pro Cys Gin Arg Giu Thr Pro Giu Giy Ala Giu Ala Asn
                               105
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
                            120
Gly Asp Arg Leu Ser Ala Glu lle Asn Arg Pro Asp Tyr Leu Asp Phe
                        135
                                            140
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
```

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31
 145
                     150
                                         155
 <210> 42
<211> 157
<212> PRT
<213> Artificial Sequence
 <220>
<223> Clone No. 17
<400> 42
Val Arg Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
Val Ala Asn Pro Gin Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
         35
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65
                     70
                                          75
Ser Arg Ile Ser Lys Thr Tyr Thr His Pro Val Asn Leu Leu Ser Ala
lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
            100
                                 105
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
    130
                        135
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145
                    150
<210> 43
<211> 157
<212> PRT
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<213> Artificial Sequence

<220>

<223> Clone No. 18

<400> 43

Val Arg Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val Val Ala Asn Pro Gin Ala Giu Giy Gin Leu Gin Trp Leu Asn Arg Arg Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe

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50
                         55
                                              60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr 11e
                                          75
Ser Arg IIe Ser Pro Leu Tyr Pro Lys Pro Val Asn Leu Leu Ser Ala
                 85
The Arg Ser Pro Cys Gin Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
                                 105
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
                            120
Gly Asp Arg Leu Ser Ala Glu. He Asn Arg Pro Asp Tyr Leu Asp Phe
                        135
    130
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
                    150
<210> 44
<211> 157.
<212> PRT
<213> Artificial Sequence
<220>
<223> Clone No. 19.
<400> 44
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
                                  25
'Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
                              40
Val Val Pro Ser Glu Gly Leu Tyr Leu lle Tyr Ser Gln Val Leu Phe
                         55
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr He
Ser Arg IIe Ser Tyr Asn Tyr Asn Gly Pro Val Asn Leu Leu Ser Ala
                 85
lie Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
                                 105
Pro Trp Tyr Glu Pro lle Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
                                                 125
        115
                             120
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
                    150
<210> 45
<211> 157
<212> PRT
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<213> Artificial Sequence

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<220>
<223> Clone No..20
<400> 45
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
Val Val Pro Ser Glu Gly Leu Tyr Leu lle Tyr Ser Gln Val Leu Phe
Ser Gly Gin Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
Ser Arg IIe Ser Ser Ala Tyr Ala Ser Pro Val Asn Leu Leu Ser Ala
lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
                            120
        115
Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
                        135
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145
                    150
                                         155
<210> 46
<211> 157
<212> PRT
<213> Artificial Sequence
<220>
<223> Clone No. 21
<400> 46
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
                             40
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
     50
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr lle
Ser Arg IIe Thr Ser Ala Tyr Gly Pro Pro Val Asn Leu Leu Ser Ala
```

lle Arg Ser Pro Cys Gin Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn

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100
                                 105
                                                      110
Pro Trp Tyr Glu Pro IIe Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
         115
                             120
                                                 125
Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
    130
                         135
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145
                     150
<210> 47
<211> 157
<212> PRT
<213> Artificial Sequence
<220>
<223> Clone No. 22
<400> 47
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
                  5
                                      10
Val Ala Asn Pro Gin Ala Giu Giy Gin Leu Gin Trp Leu Asn Arg Arg
                                  25
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
                             40
Val Val Pro Ser Glu Gly Leu Tyr Leu lle Tyr Ser Gln Val Leu Phe
                          55
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
                     70 .
                                          75
Ser Arg Ile Ser Arg Val Tyr Thr Ala Pro Val Asn.Leu Leu Ser Ala
                                      90
lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
            100
                                105
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
                             120
                                                 125
Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
    130
                        135
Ala Glu Ser Gly Gln Val Tyr Phe Gly He He Ala Leu
145
                     150
<210> 48
<211> 157
<213> Artificial Sequence
<220>
<223> Clone No. 23
<400> 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
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10
 Val Ala Asn Pro Gin Ala Giu Giy Gin Leu Gin Trp Leu Asn Arg Arg
                                  25
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35 .
 Vai Val Pro Ser Glu Gly Leu Tyr Leu lie Tyr Ser Gln Vai Leu Phe
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ite
  65
                      70
                                          75
Ser Arg lle Thr Thr Ala Tyr Ser Gly Pro Val Asn Leu Leu Ser Ala
 lie Arg Ser Pro Cys Gln Arg Giu Thr Pro Glu Gly Ala Glu Ala Asn
             100
Pro Trp Tyr Glu Pro lle Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
    130
                         135
                                             140
Ala Glu Ser Gly Gin Val Tyr Phe Gly Ile lie Ala Leu
                     150
                                         155
<210> 49
<211> 157 ·
<212> PRT
<213> Artificial Sequence
<220>
<223> Clone No. 24
<400> 49
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
Ser Arg Ile Thr His Lys Tyr Pro Gln Pro Val Asn Leu Leu Ser Ala
                                     90
lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
                            120
Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
    130
                        135
                                             140
Ala Glu Ser Gly Gln Val Tyr Phe Gly 11e 11e Ala Leu
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145
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 <210> 50
<211> 157
<212> PRT
<213> Artificial Sequence
<220>
<223> Clone No. 25
<400> 50
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
                                      10
Val Ala Asn Pro Gin Ala Giu Giy Gin Leu Gin Trp Leu Asn Arg Arg
                                  25
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gin Leu
                              40
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
                          55
                                              60
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
                     70
                                          75
Ser Arg Tie Ser Lys Thr Tyr Ser His Pro Val Asn Leu Leu Ser Ala
                 85
                                      90
lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
                                 105
Pro Irp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
        115
                             120
                                                  125
Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
                        135
Ala Glu Ser Gly Gln Val Tyr Phe Gly IIe IIe Ala Leu
145
                    150
                                       · 155
<210> 51
<211> 157
<212> PRT
<213> Artificial Sequence
<220>
<223> Clone No. 26
<400> 51
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
Val Ala Asn Pro Gin Ala Giu Gly Gin Leu Gin Trp Leu Asn Arg Arg
                                  25
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
                             40
```

Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe

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50
                          55
                                               60
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr 11e
- 65
                      70
. Ser Arg IIe Ser Ser His Tyr Arg Phe Pro Val Asn Leu Leu Ser Ala
lie Arg Ser Pro Cys Gin Arg Giu Thr Pro Giu Giy Ala Giu Ala Asn
                                  105
             100
Pro Trp Tyr Glu Pro lie Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
                             120
Gly Asp Arg Leu Ser Ala Glu lle Asn Arg Pro Asp Tyr Leu Asp Phe
    130
                         135
Ala Glu Ser Gly Gln Val Tyr Phe Gly IIe IIe Ala Leu
145
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                                          155
<210> 52
<211> 157
<212> PRT
<213> Artificial Sequence
<220>
<223> Clone No. 27
<400> 52
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
                                      10
Val Ala Asn Pro Gin Ala Giu Giy Gin Leu Gin Trp Leu Asn Arg Arg
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
                                                   45
Val Val Pro Ser Glu Gly Leu Tyr Leu IIe Tyr Ser Gln Val Leu Phe
                          55
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr 11e
                                           75
Ser Arg IIe Thr Pro Ala Tyr Pro Arg Pro Val Asn Leu Leu Ser Ala<sup>e</sup>
                 85
lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
            100
                                 105
Pro Trp Tyr Glu Pro IIe Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
                             120
Gly Asp Arg Leu Ser Ala Glu lie Asn Arg Pro Asp Tyr Leu Asp Phe
    130
                         135
Ala Glu Ser Gly Gln Val Tyr Phe Gly 11e 11e Ala Leu
145
                    150
                                         155
<210> 53
<211> 157
<212> PRT
<213> Artificial Sequence
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<220>
<223> Clone No. 28
<400> 53
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
Val Ala Asn Pro Gln Ala Giu Gly Gln Leu Gln Trp Leu Asn Arg Arg
             20
                                  25
Ala Asn Ala Leu Leu Ala Asn Gly Vai Glu Leu Arg Asp Asn Gln Leu
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
     50
                          55
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
                                          75
Ser Arg IIe Thr Lys Ser Tyr Ser Lys Pro Val Asn Leu Leu Ser Ala
                                      90
lle Arg Ser Pro Cys Gin Arg Giu Thr Pro Giu Gly Ala Giu Ala Asn
                                 105
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
                            120
                                                 125
Gly Asp Arg Leu Ser Ala Glu lle Asn Arg Pro Asp Tyr Leu Asp Phe
                      ~ 135
Ala Glu Ser Gly Gln Val Tyr Phe Gly lle lle Ala Leu
145
                    150
<210> 54
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<212> PRT
<213> Artificial Sequence
<220>
<223> Clone No. 29
<400> 54
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
                             40
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr 11e
Ser Arg Ile Thr Glu Gln Tyr Ser His Pro Val Asn Leu Leu Ser Ala
```

lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn

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105
 Pro Trp Tyr Glu Pro ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
                                                 125
                             120
Gly Asp Arg Leu Ser Ala Glu lle Asn Arg Pro Asp Tyr Leu Asp Phe
                         135
Ala Glu Ser Gly Gln Val Tyr Phe Gly He He Ala Leu
 145
                     150
 <210> 55 ·
<211> 157
<212> PRT
<213> Artificial Sequence
<220>
<223> Clone No. 30
<400> 55
Val Arg Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
Val Ala Asn Pro Gin Ala Giu Giy Gin Leu Gin Trp Leu Asn Arg Arg
             20
Ala Asn Ala Leu Leu Ala Asn Gly Vai Glu Leu Arg Asp Asn Gln Leu
Val Val Pro Ser Glu Gly Leu Tyr Leu He Tyr Ser Gln Val Leu Phe
     50
                          55
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr 11e
                                          75
Ser Arg Ile Thr Pro Gly Tyr Pro Ser Pro Val Asn Leu Leu Ser Ala
                 85
                                      90
lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
                                 105
Pro Trp Tyr Glu Pro lle Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
        115
                             120
                                                 125
Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
                        135
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145
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<210> 56
<211> 157
<212> PRT
<213> Artificial Sequence
<220>
<223> Clone No. 31
<400> 56
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Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val

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10
Val Ala Asn Pro Gln.Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
         35
Val Val Pro Ser Glu Gly Leu Tyr Leu lle Tyr Ser Gln Val Leu Phe
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
                     70
                                          75
Ser Arg Ile Ser Lys Thr Tyr Ser His Pro Val Asn Leu Leu Ser Ala
lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
                                 105
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
        115
                             120
Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
                        135
                                           - 140
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145
                    150
<210> 57
<211> 157
<212> PRT
<213> Artificial Sequence
· <220>
<223> Clone No. 32
<400> 57
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
                                      10
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
                                  25
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gin Leu
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
                         55
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65
                                          75
Ser Arg IIe Thr Asp Arg Tyr Ser Ser Pro Val Asn Leu Leu Ser Ala
lle Arg Ser Pro Cys Gin Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
                            120
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
                        135
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ite Ite Ala Leu
```

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145
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                                          155
 <210> 58
 <211> 157
 <212> PRT
 <213> Artificial Sequence
 <220>
 <223> Clone No. 33
 <400> 58
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
                                      10
 Val Ala Asn Pro Gin Ala Giu Giy Gin Leu Gin Trp Leu Asn Arg Arg
                               . 25
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35
                              40
                                                  45
 Val Val Pro Ser Glu Gly Leu Tyr Leu IIe Tyr Ser Gln Val Leu Phe
                          55
                                               60
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
                      70
                                          75
 Ser Arg Ile Asn His Arg Tyr Gln Asp Pro Val Asn Leu Leu Ser Ala
                 . 85
                                      90
 The Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
             100
                                 105
                                                     110
 Pro Trp Tyr Glu Pro lle Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
         115
                             120
                                                 125
 Gly Asp Arg Leu Ser Ala Glu IIe Ash Arg Pro Asp Tyr Leu Asp Phe
                         135
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
                     150
 <210> 59
 <211> 157
 <212> PRT
 <213> Artificial Sequence
<220> -
 <223> Clone No. 34
 <400> 59
Val Arg Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
                                      10
Val Ala Asn Pro Gin Ala Giu Giy Gin Leu Gin Trp Leu Asn Arg Arg
                                  25
Ala Asn Ala Leu Leu Ala Asn Giy Val Glu Leu Arg Asp Asn Gin Leu
```

Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe

35

```
55
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
                                          75
Ser Arg IIe Ser Ala Asp Tyr Pro His Pro Val Asn Leu Leu Ser Ala
 lle Arg Ser Pro Cys Gin Arg Giu Thr Pro Giu Gly Ala Giu Ala Asn
                                 105
                                                     110.
Pro Trp Tyr Glu Pro lle Tyr Leu Gly Gly Vai Phe Gln Leu Glu Pro
        115
                            120
                                                 125
Gly Asp Arg Leu Ser Ala Glu ile Asn Arg Pro Asp Tyr Leu Asp Phe
                        135
                                             140
Ala Glu Ser Gly Gln Val Tyr Phe Gly lle lle Ala Leu
145
                    150
                                         155
<210> 60
<211> 471
<212> DNA
<213> Artificial Sequence
<220>
<223> Clone No. 1
<400> 60
gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
                  5
                                      10
gta gca aac cct caa gct gag ggg cag ctc cag tgg cag aac agg tgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Gln Asn Arg Trp
             20
                                  25
                                                      30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
         35
                             40
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu lle Tyr Ser Gin Val Leu Phe
     50
                         55
                                              60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser-Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65
                     70
                                          75
ago ogo ato goo gto too tao dag ado doo gto aad dto dto tot goo 288
Ser Arg IIe Ala Val Ser Tyr Gin Thr Pro Val Asn Leu Leu Ser Ala
                                      90
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
            100
                                105
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
        115
                            120
                                                 125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
```

```
Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
    130
                        135
                                             140
gcc gag tot ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145
                                         155
                    150
<210> 61
<211> 471
<212> DNA
<213> Artificial Sequence
<220>
<223> Clone No. 2
<400> 61
gtc aga toa tot tot cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
                                     -10
gta gca aac cct caa gct gag ggg cag ctc cag tgg acg aac ggg tac 96
Val Ala Asn Pro Gin Ala Giu Giy Gin Leu Gin Trp Thr Asn Giy Tyr
             20
                                  `25
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
         35
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu lle Tyr Ser Gin Val Leu Phe
                         55
                                              60
tog ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
                     70
                                          75
ago ogo ato goo gto too tac cag aco coo gto aac ctc ctc tot goo 288
Ser Arg Ile Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
                 85
                                      90
                                                          95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
            100
                                 105
                                                     110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
        115
                            120
                                                 125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
   130
                        135
                                             140
gcc gag tot ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly IIe IIe Ala Leu
145
                    150
                                         155
<210> 62
```

<211> 471

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<212> DNA
<213> Artificial Sequence
<220>
<223> Clone No. 3
<400> 62
gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
gta gca aac cct caa gct gag ggg cag ctc cag tgg tcc aac agc gac 96
Val Ala Asn Pro Gin Ala Glu Gly Gin Leu Gin Trp Leu Asn Ser Asp
             20
                                                      30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
                             40
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu-Gly Leu Tyr Leu lle Tyr Ser Gln Val Leu Phe
     50
                          55
tog ggo caa ggo tgo coo too acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65
                      70
ago ogo ato goo gto too tac dag aco doo gto aad oto oto tot goo 288 -
Ser Arg IIe Ala Val Ser Tyr Gln Thr Pro Val Asn Leu Leu Ser Ala
                 85
                                      90
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
lle Arg Ser Pro Cys Gin Arg Giu Thr Pro Giu Giy Ala Giu Ala Asn
            100
                               105
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro lle Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
        115
                            120
                                                 125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
    130
                        135
gcc gcc cgc ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Ala Arg Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145
                    150
                                         155
<210> 63
<211> 471
<212> DNA
<213> Artificial Sequence
<220>
<223> Clone No. 4
<400> 63
gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
```

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Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
                                      10
gta gca aac cct caa gct gag ggg cag ctc cag tgg aag aac gcc ggc 96
Val Ala Asn Pro Gin Ala Giu Giy Gin Leu Gin Trp Lys Asn Ala Giy
             20
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
         35
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu lle Tyr Ser Gln Val Leu Phe
     50
                         55
tog ggo caa ggo tgo coo too acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
                                          75
ago ogo ato goo gto too tao dag ado doo gto aad dto cto tot goo 288
Ser Arg IIe Ala Val Ser Tyr Gin Thr Pro Val Asn Leu Leu Ser Ala
                 85
                                      90
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
            100
                                105
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro lie Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
        115
                            120
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
                        135
gct tcg acg ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Ser Thr Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145
                    150
                                         155
<210> 64
<211> 471
<212> DNA
<213> Artificial Sequence
<220>
<223> Clone No. 16
<400> 64
gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
                                      10
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
             20
                                  25
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
                                                  45
                             40
```

```
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
tog ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
                                         75
 65
                     70
age ege ate age teg ace tac ece gae ece gte aac etc etc tet gee 288
Ser Arg IIe Ser Ser Thr Tyr Pro Asp Pro Val Asn Leu Leu Ser Ala
                                                         95
                 85
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
            100
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro lle Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
                            120
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
    130
                        135
gcc gag tot ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145
                    150
<210> 65
<211> 471
<212> DNA
<213> Artificial Sequence
<220>
<223> Clone No. 17
<400> 65
gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
                                                          15
  1
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gin Ala Giu Gly Gin Leu Gin Trp Leu Asn Arg Arg
             20
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
         35
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu lle Tyr Ser Gln Val Leu Phe
                         55
     50
tog ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240 ·
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
65
                                          75 ·
                     70
age ege ate teg aag ace tac ace cac eec gtc aac etc etc tet gec 288
Ser Arg Ile Ser Lys Thr Tyr Thr His Pro Val Asn Leu Leu Ser Ala
```

```
85
                                      90
                                                          95
 atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
 lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
             100
                                 105
 ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Giy Val Phe Gln Leu Glu Pro
        115
                             120
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
    130
                        135
gcc gag tot ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145
                    150
                                         155
<210> 66
<211> 471
<212> DNA
<213> Artificial Sequence
<220> ·
<223> Clone No. 18
<400> 66
gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gin Leu Gln Trp Leu Asn Arg Arg
             20
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
         35
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
     50
                         55
tog ggo caa ggo tgo coo too acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr 11e
 65
                     70
                                          75
ago ogo ato too oco otg tao oco aag oco gto aac oto oto tot goo 288
Ser Arg Ile Ser Pro Leu Tyr Pro Lys Pro Val Asn Leu Leu Ser Ala
                 85
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
He Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
            100
                               105
                                                     110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro 11e Tyr Leu Gly Gly Val Phe Gin Leu Glu Pro
        115
                            120
                                                 125
```

ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432

```
Gly Asp Arg Leu Ser Ala Glu lle Asn Arg Pro Asp Tyr Leu Asp Phe
                        135
                                             140
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145
                    150 .
                                         155
<210> 67
<211> 471
<212> DNA
<213> Artificial Sequence
<220>
<223> Clone No. 19
<400> 67
gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
             20
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
                             40
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
                         55
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65
                     70
                                          75
ago ogo ato too aco aac tac aac ggo oco gto aac oto oto tot goo 288
Ser Arg He Ser Tyr Asn Tyr Asn Gly Pro Val Asn Leu Leu Ser Ala
                 85
                                      90
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
lle Arg Ser Pro Cys Gin Arg Giu Thr Pro Giu Gly Ala Giu Ala Asn
            100
                                105
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
        115
                            120
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu lie Asn Arg Pro Asp Tyr Leu Asp Phe
130
                        135
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly He He Ala Leu
145
                    150
<210> 68
<211> 471
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<212> DNA

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<213> Artificial Sequence
 <220> ·
<223> Clone No. 20
<400> 68
gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
             20
                                  25
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
         35
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu lle Tyr Ser Gln Val Leu Phe
     50
                         55
tog ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65
                                          75
ago ogo ato too ago gog tao gog ago oco gto aac oto oto tot goo 288
Ser Arg Ile Ser Ser Ala Tyr Ala Ser Pro Val Asn Leu Leu Ser Ala
                 85
                                      90
                                                          95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
            100
                                 105
                                                     110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro He Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
        115
                            120
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu lie Asn Arg Pro Asp Tyr Leu Asp Phe
    130
                        135
                                             140
gcc gag tot ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly lie lie Ala Leu
145
                    150
                                         155
<210> 69
<211> 471
<212> DNA
<213> Artificial Sequence
<220>
<223> Clone No. 21
<400> 69
gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
```

```
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gin Ala Glu Gly Gin Leu Gin Trp Leu Asn Arg Arg
             20
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
         35
                             40
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu lle Tyr Ser Gln Val Leu Phe
     50
                         ·55
tog ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65
                     70
                                          75
ago ogo ato tog tog god tad ggg dog dod gtd aad dtd dtd tot god 288
Ser Arg Ile Thr Ser Ala Tyr Gly Pro Pro Val Asn Leu Leu Ser Ala
                 85
                                                          95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn.
            100
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro lie Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
        115
                            120
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu lle Asn Arg Pro Asp Tyr Leu Asp Phe
    130
                        135
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145
                    150
<210> 70
<211> 471
<212> DNA
<213> Artificial Sequence
<220>
<223> Clone No. 22
<400> 70
gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
                                 25
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
         35
```

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gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
 Val Val Pro Ser Glu Gly Leu Tyr Leu lle Tyr Ser Gln Val Leu Phe
      50
                          55
 tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
  65
 ago ogo ato tog ogo gtg tac aco goo coo gto aac cto cto tot goo 288
 Ser Arg Ile Ser Arg Val Tyr Thr Ala Pro Val Asn Leu Leu Ser Ala
                                      90
 atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc-aac 336
 lle Arg Ser Pro Cys Gin Arg Giu Thr Pro Giu Gly Ala Giu Ala Asn
             100
                                 105
                                                     110
 ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro lie Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
         115
                             120
                                                 125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu IIe Ash Arg Pro Asp Tyr Leu Asp Phe.
    130
                         135
                                             140
gcc gag tot ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly lle lle Ala Leu
145
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                                         155
<210> 71
<211> 471
<212> DNA
<213> Artificial Sequence
<220>
<223> Clone No. 23
<400> 71
gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gin Ala Glu Gly Gin Leu Gin Trp Leu Asn Arg Arg
             20
                                  25
                                                      30
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
         35
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu lle Tyr Ser Gln Val Leu Phe
     50
                         55
                                              60
tog ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
65
                     70
                                          75
                                                              80
ago ogo ato acg acg gog tac ago ggo coo gto aac ctc ctc tot goc 288
Ser Arg IIe Thr Thr Ala Tyr Ser Gly Pro Val Asn Leu Leu Ser Ala
```

```
85
                                      90
 atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
 lle Arg Ser Pro Cys Gin Arg Giu Thr Pro Giu Gly Ala Giu Ala Asn
             100
                                 105
 ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gin Leu Glu Pro
                             120
 ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
     130
                        135
                                             140
 gcc gag tot ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145
                     150
<210> 72
<211> 471
<212> DNA
<213> Artificial Sequence
<220>
<223> Clone No. 24
<400> 72
gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gin Ala Giu Giy Gin Leu Gin Trp Leu Asn Arg Arg
             20
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
                             40
gtg gtg cca toa gag ggc ctg tac ctc atc tac toc cag gtc. ctc ttc 192 s
Val Val Pro Ser Glu Gly Leu Tyr Leu lle Tyr Ser Gln Val Leu Phe
     50
                         55
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65
                     70
                                          75
ago ogo ato acg cac aag tac oog cag occ gto aac oto oto tot goo 288
Ser Arg IIe Thr His Lys Tyr Pro Gln Pro Val Asn Leu Leu Ser Ala
                                      90
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
            100
                                105
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
        115
                            120
                                                 125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
```

```
Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
                       . 135
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly lie lie Ala Leu
145
                     150
                                         155
<210> 73
<211> 471
<212> DNA
<213> Artificial Sequence
<220>
<223> Clone No. 25
<400> 73
gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
                                      10
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gin Ala Glu Gly Gin Leu Gin Trp Leu Asn Arg Arg
             20
                                  25
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
         35
                                                  45
                              40
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu IIe Tyr Ser Gln Val Leu Phe
     50
                          55
                                              60
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65
                      70
                                          75
ago ogo ato ago aag aco tao too cao oco gto aac oto oto tot goo 288 -
Ser Arg Ile Ser Lys Thr Tyr Ser His Pro Val Asn Leu Leu Ser Ala
                 85
                                     90
                                                          95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
            100
                                 105
                                                     110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro lle Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
        115
                            120
                                                 125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
    130
                        135
                                             140
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly He He Ala Leu
145
                    150
                                         155
<210> 74
<211> 471
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<212> DNA
 <213> Artificial Sequence
 <220>
 <223> Clone No. 26
 <400> 74
 gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
 Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
              20
 gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gin Leu
         35
 gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu IIe Tyr Ser Gln Val Leu Phe
     · 50
                          55
tog ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr 11e
 65
                     70
ago ogo ato tog too cao tao agg tto oco gto aac oto oto tot goo 288
Ser Arg Ile Ser Ser His Tyr Arg Phe Pro Val Asn Leu Leu Ser Ala
                  85
                                      90
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
            100
                                 105
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro lie Tyr Leu Gly Gly Val Phe Gin Leu Glu Pro
        115
                            120
                                                 125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
    130
                        135
                                             140
gcc gag tot ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gin Val Tyr Phe Gly Ile Ile Ala Leu
145
                    150
                                         155
<210> 75
<211> 471
<212> DNA
<213> Artificial Sequence
<220>
<223> Clone No. 27
<400> 75
gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
```

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Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gin Ala Giu Giy Gin Leu Gin Trp Leu Asn Arg Arg
           . 20
                                 25
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
         35
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu ile Tyr Ser Gln Val Leu Phe
     50
                         55
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65
                                          75
                     70
ago ogo ato aco oco god tac oco ogg oco gto aac oto oto tot god 288
Ser Arg Ile Thr Pro Ala Tyr Pro Arg Pro Val Asn Leu Leu Ser Ala
                 85
                                    ຸ 90
                                                          95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
            100
                                 105
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro IIe Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
                            120
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
    130
                        135
                                             140
gcc gag tot ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145
                    150
                                         155
<210> 76
<211> 471
<212> DNA
<213> Artificial Sequence
<220>
<223> Clone No. 28
<400> 76
gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
  1
                  5
                                                          15
                                      10
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
                                 25
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
                            . 40
```

```
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
                         55
tog ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr lle
 65
                                         75
                     70
ago ogo ato acg aag too tao too aag oco gto aac oto oto tot goo 288
Ser Arg lie Thr Lys Ser Tyr Ser Lys Pro Val Asn Leu Leu Ser Ala
               · 85
                                     90
                                                          95
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
lle Arg Ser Pro Cys Gin Arg Giu Thr Pro Giu Gly Ala Giu Ala Asn
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro lle Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
                            120
                                                 125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
                        135
    130
gcc gag tot ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly lle lle Ala Leu
145
                    150
                                        155
<210> 77
<211> 471
<212> DNA
<213> Artificial Sequence
<220>
<223> Clone No. 29
<400> 77
gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
                  5
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
             20
                                 25
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
                         55
tog ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr lle
                     70
age ege ate ace gag eag tac tee cac ece gte aac ete ete tet gee 288
Ser Arg IIe Thr Glu Gin Tyr Ser His Pro Val Asn Leu Leu Ser Ala
```

```
95
                                      90
 atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
 lle Arg Ser Pro Cys Gin Arg Glu Thr Pro Glu Giy Ala Glu Ala Asn
             100
                                 105
                                                      110
 ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
 Pro Trp Tyr Glu Pro lie Tyr Leu Gly Gly Val Phe Gin Leu Glu Pro
         115
                             120
 ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
 Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
                         135
 gcc gag tot ggg cag gtc tac ttt ggg atc att gcc ctg
 Ala Glu Ser Gly Gln Val Tyr Phe Gly I e I e Ala Leu
 145
                     150
                                         155
 <210> 78
 <211> 471
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Clone No. 30
 <400> 78
gtc aga toa tot tot oga acc oog agt gac atg oot gta goc oat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
                                      10
 gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gin Ala Glu Gly Gin Leu Gin Trp Leu Asn Arg Arg
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat, aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
         35
                              40
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu IIe Tyr Ser Gln Val Leu Phe
     50
tog ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65
                                          75
                                                              ٠80
ago ego ato aeg eco cag tao eeg too eco gto aac eto eto tet geo 288
Ser Arg lie Thr Pro Gly Tyr Pro Ser Pro Val Asn Leu Leu Ser Ala
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
                                 105
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro lle Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
        115
                             120
                                                 125
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
```

```
Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
     130
                       . 135
 gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly IIe IIe Ala Leu
 145
                    150
                                         155
 <210> 79
 <211> 471
<212> DNA
<213> Artificial Sequence
<220>
<223> Clone No. 31
<400> 79
gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
                  . 5
  1
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
             20
                                  25
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192 .
Val Val Pro Ser Glu Gly Leu Tyr Leu 11e Tyr Ser Gln Val Leu Phe
     50
                          55
tcg ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240 1
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65
                     70
ago ogo ato ago aag aco tac too cac oco gto aac etc etc tot goo 288
Ser Arg lle Ser Lys Thr Tyr Ser His Pro Val Asn Leu Leu Ser Ala
                 85
                                      90
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
lle Arg Ser Pro Cys Gin Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
                                 105
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro lle Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
                             120
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
                        135
gcc gag tot ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145
                    150
                                        . 155
<210> 80
<211> 471
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<212> DNA
 <213> Artificial Sequence
 <220>
 <223> Clone No. 32
 <400> 80
 gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
 Val Arg Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
              20
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
         35
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu IIe Tyr Ser Gln Val Leu Phe
                          55
tog ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr IIe
 65
                     70
                                          75
ago ogo ato aog gao ogo tao ago ago oco gto aao oto oto tot goo 288
Ser Arg Ile Thr Asp Arg Tyr Ser Ser Pro Val Asn Leu Leu Ser Ala
                 85
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
            100
                                 105
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro lie Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
        115
                            120
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu lle Asn Arg Pro Asp Tyr Leu Asp Phe
    130
                        135
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145
                    150
                                         155
<210> 81
<211> 471.
<212> DNA
<213> Artificial Sequence
<220>
<223> Clone No. 33
<400> 81
gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
```

```
Val Arg Ser Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
 gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
 Val Ala Asn Pro Gin Ala Glu Gly Gin Leu Gin Trp Leu Asn Arg Arg
              20
                                  25__
 gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
          35
 gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
Val Val Pro Ser Glu Gly Leu Tyr Leu lle Tyr Ser Gln Val Leu Phe
                          55
tog ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65
ago ogo ato aac cac agg tac cag gac oco gto aac cto cto tot goo 288
Ser Arg IIe Asn His Arg Tyr Gln Asp Pro Val Asn Leu Leu Ser Ala
                  85
atc cgc agc ccc tgc cag agg gag acc cca gag ggg gct gag gcc aac 336
lle Arg Ser Pro Cys Gin Arg Giu Thr Pro Giu Giy Ala Giu Ala Asn
                                 105
ccc tgg tat gag ccc atc tat ctg 'gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro lle Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
        115
                             120
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
    130
                         135
gcc gag tct ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly 11e 11e Ala Leu
145
                  . . [150
<210> 82
<211> 471
<212> DNA
<213> Artificial Sequence
<220>
<223> Clone No. 34
<400> 82
gtc aga tca tct tct cga acc ccg agt gac atg cct gta gcc cat gtt 48
Val Arg Ser Ser Arg Thr Pro Ser Asp Met Pro Val Ala His Val
gta gca aac cct caa gct gag ggg cag ctc cag tgg ctg aac cgc cgg 96
Val Ala Asn Pro Gin Ala Giu Gly Gin Leu Gin Trp Leu Asn Arg Arg
             20
                                 25
gcc aat gcc ctc ctg gcc aat ggc gtg gag ctg aga gat aac cag ctg 144
Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
         35
```

```
gtg gtg cca tca gag ggc ctg tac ctc atc tac tcc cag gtc ctc ttc 192
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
      50
                          55
 tog ggc caa ggc tgc ccc tcc acc cat gtg ctc ctc acc cac acc atc 240
 Ser Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65
                      70
 ago ogo ato too gog gao tac oco cac oco gto aac oto oto tot goo 288
 Ser Arg lle Ser Ala Asp Tyr Pro His Pro Val Asn Leu Leu Ser Ala
                  85
                                      90
 atc egc agc ecc tgc cag agg gag acc eca gag ggg get gag gec aac 336
 lle Arg Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Asn
             100
                                 105
                                                     110
ccc tgg tat gag ccc atc tat ctg gga ggg gtc ttc cag ctg gag ccg 384
Pro Trp Tyr Glu Pro lle Tyr Leu Gly Gly Val Phe Gln Leu Glu Pro
        115
                             120
ggt gac cga ctc agc gct gag atc aat cgg ccc gac tat ctc gac ttt 432
Gly Asp Arg Leu Ser Ala Glu IIe Asn Arg Pro Asp Tyr Leu Asp Phe
    130
                         135
                                             140
gcc gag tot ggg cag gtc tac ttt ggg atc att gcc ctg
Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
145
                     150
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<211> 87
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<213> Artificial Sequence
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<223> Oligonucleotide as a primer having NNS sequences (for mutating the
amino acid residues at the 29,31 and 32)
<400> 83
gacatgootg tagcocatgt tgtagcaaac cotcaagotg aggggcagot coagtggnns 60 -
aacnnsnnsg ccaatgccct cctggcc
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<211> 57
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<213> Artificial Sequence
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<223> Oligonucleotide as a primer having NNS sequences (for mutating the
amino acid resudues at the 145 to 147)
<400> 84
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<211> 65
<212> DNA
<213> Artificial Sequence
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<223> Oligonucleotide as a 5'-terminal linker to insert the PCR-amplified
 DNA into a phagemid vector
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atgtt
<210> 86
<211> 62
<212> DNA
<213> Artificial Sequence
<220>
<223> Oligonucleotide as a 3'-terminal linker to insert the PCR-amplified
 DNA into a phagemid vector
<400> 86
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ac
<210> 87
<211> 87
<212> DNA
<213> Artificial Sequence
<220>
<223> Oligonucleotide as an anti-sense primer having NNS sequences (for m
utating amino acid residues at the position 84-89)
<400> 87
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gcggctgatg gtgtgggtga ggagcac
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<211> 218
<212> DNA
<213> Artificial Sequence
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<223> Oligonucleotide as a 3'-terminal linker to insert the PCR-amplified
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<400> 88
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<210> 89

<211> 38

<212> DNA

<213> Artificial Sequence

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<223> Oligonucleotide as a 5'-terminal linker to insert the PCR-amplified DNA into an expression vector

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<210> 90

<211> 35

<212> DNA

<213> Artificial Sequence

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<223> Oligonucleotide as a 3'-terminal linker to insert the PCR-amplified DNA into an expression vector

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